



SPACECRAFT FIRE SAFETY

Saffire is a series of investigations that ignite controlled fires in space.

HOW IT WORKS

- 1** The experiment is designed, fabricated, and tested by engineers at NASA Glenn Research Center and ZIN Technologies, Inc. in Cleveland, Ohio.
- 2** About two months prior to launch, Saffire is loaded into a Northrop Grumman Cygnus spacecraft that NASA uses to send supplies to the International Space Station.
- 3** Cygnus delivers tons of cargo to the space station, including experiments, food and other supplies. When it finishes its primary mission, it's Saffire's time to shine – or burn!
- 4** After Cygnus departs from the station and is a safe distance away, controllers at Northrop Grumman remotely ignite the Saffire experiment.

FUN FACT

Cygnus is the only vehicle that NASA can use to conduct the Saffire experiments, because the fire is ignited after the barge completes its primary mission, but before its controlled destructive reentry through the Earth's atmosphere.



WHAT WE LEARN

Investigating large-scale flame growth, spread, monitoring, and cleanup in space.

SAFFIRE I

The test sample was a 1 meter long by 0.4 meter wide cotton-fiberglass blend. Prior to Saffire, the largest fire experiment that had been conducted in space was about the size of an index card.

SAFFIRE III

Burns the same cotton-fiberglass blend that was burned in Saffire-I, but at a higher flow velocity.

SAFFIRE II

Nine samples of materials used on the space station: flame retardant fabrics used for astronaut clothing, station Plexiglas window samples with edge variations and structures used for storage containers and silicone.

SAFFIRE IV

The sample materials are similar to those in Saffire-II, but some of them will be burned at different pressures and oxygen saturation for comparison. The experiment also contains fire detection, post-fire cleanup and monitoring equipment that will be used on Orion.